**CLAIMS:**

1. A routing device comprising:

a plurality of interface modules to communicate data packets using a network; and

a router module to process the data packets and to forward the data packets between the interface modules.

2. The routing device of claim 1, further comprising a midplane coupled to the plurality of interface modules and to the router module.

3. The routing device of claim 1, wherein the router module comprises a system control module and at least one concentrator module integrated into a single unit.

4. The routing device of claim 3, further comprising at least one memory management circuit to provide data to the concentrator module.

5. The routing device of claim 4, further comprising a memory coupled to the concentrator module and configured to store the data provided to the concentrator module.

6. The routing device of claim 5, wherein the memory is further configured to store data associated with an outbound packet.

7. The routing device of claim 5, wherein the memory is further configured to store incoming data associated with an inbound packet.

8. The routing device of claim 5, wherein the memory comprises an SDRAM device.

9. The routing device of claim 4, wherein the memory management circuit is further configured to provide a notification to the system control module based on information extracted from an incoming data packet.

10. The routing device of claim 9, wherein the extracted information includes at least one of source address information, destination address information, source port information, and destination port information.

11. The routing device of claim 9, wherein the packet forwarding module is configured to select a route by referencing a forwarding table based on the extracted information.

12. The routing device of claim 11, further comprising a routing engine to store the routing table.

13. The routing device of claim 11, further comprising a memory to store the selected route in a forwarding table.

14. The routing device of claim 11, wherein the memory management circuit is configured to forward the incoming data packet to an interface module based on the selected route.

15. The routing device of claim 1, further comprising a redundant router module to process the data packets and to forward the data packets between the interface modules in response to malfunction of the router module.

16. A routing device comprising:

a plurality of interface cards to communicate data packets using a network;

a router module comprising a packet processing circuit, a memory management circuit, and a route lookup circuit integrated into a single module and a routing engine; and

a midplane coupled to the router module and to the plurality of interface cards.

17. The routing device of claim 16, wherein the single module comprises a single printed circuit card that interconnects the packet processing circuit, the memory management circuit, and the route lookup circuit.

18. The routing device of claim 16, further comprising a memory coupled to the packet processing circuit and configured to store incoming data.

19. The routing device of claim 18, wherein the memory management circuit is configured to provide packet data to the packet processing circuit.

20. The routing device of claim 18, wherein the memory is further configured to store outbound data.

21. The routing device of claim 18, wherein the memory comprises an SDRAM device.

22. The routing device of claim 16, wherein the memory management circuit is configured to provide a notification to the route lookup circuit based on information extracted from an incoming data packet.

23. The routing device of claim 22, wherein the extracted information includes at least one of source address information, destination address information, source port information, and destination port information.

24. The routing device of claim 22, wherein the route lookup circuit is configured to select a route by referencing a forwarding table based on the extracted information.

25. The routing device of claim 24, wherein the route lookup circuit is configured to select the route by performing a longest prefix match based on the extracted information.

26. The routing device of claim 24, further comprising a routing engine to store the routing table.

27. The routing device of claim 24, further comprising a memory to store the selected route in a forwarding table.

28. The routing device of claim 24, wherein the memory management circuit is configured to forward the incoming data packet to an interface card based on the selected route.

29. The routing device of claim 16, wherein the packet processing circuit is configured to remove an L2 header from an incoming data packet.

30. The routing device of claim 16, wherein the packet processing circuit is configured to build an L2 header for an outbound data packet.

31. The routing device of claim 16, further comprising a redundant router module to process the data packets and to forward the data packets between the interface modules in response to malfunction of the router module.

32. A routing arrangement comprising:

a crossbar arrangement; and

a plurality of routing devices coupled to the crossbar arrangement, at least one routing device comprising:

a plurality of interface modules to communicate data packets using a network; and

a router module to process the data packets and to forward the data packets between the interface modules.

33. The routing arrangement of claim 32, further comprising a midplane coupled to the plurality of interface modules and to the router module.

34. The routing arrangement of claim 32, wherein the router module comprises a system control module and at least one concentrator module integrated into a single unit.

35. The routing arrangement of claim 34, further comprising at least one memory management circuit to provide data to the concentrator module.

36. The routing arrangement of claim 35, further comprising a memory coupled to the concentrator module and configured to store the data provided to the concentrator module.

37. The routing arrangement of claim 36, wherein the memory is further configured to store outbound data.

38. The routing arrangement of claim 36, wherein the memory is further configured to store incoming data.

39. The routing arrangement of claim 36, wherein the memory comprises an SDRAM device.

40. The routing arrangement of claim 35, wherein the memory management circuit is further configured to provide a notification to the system control module based on information extracted from an incoming data packet.

41. The routing arrangement of claim 40, wherein the extracted information includes at least one of source address information, destination address information, source port information, and destination port information.

42. The routing arrangement of claim 40, wherein the system control module is configured to select a route by referencing a forwarding table based on the extracted information.

43. The routing arrangement of claim 42, further comprising a routing engine to store the routing table.

44. The routing arrangement of claim 42, further comprising a memory to store the selected route in a forwarding table.

45. The routing arrangement of claim 42, wherein the memory management circuit is configured to forward the incoming data packet to an interface module based on the selected route.

46. The routing arrangement of claim 32, further comprising a redundant router module to process the data packets and to forward the data packets between the interface modules in response to malfunction of the router module.

47. A routing arrangement comprising:

a crossbar arrangement; and

a plurality of routing devices coupled to the crossbar arrangement, at least one routing device comprising:

a plurality of interface cards to communicate data packets using a network,

a router module comprising a packet processing circuit, a memory management circuit, and a route lookup circuit integrated into a single module and a routing engine, and

a midplane coupled to the router module and to the plurality of interface cards.

48. The routing arrangement of claim 47, wherein the single module comprises a single printed circuit card that interconnects the packet processing circuit, the memory management circuit, and the route lookup circuit.

49. The routing arrangement of claim 47, further comprising a memory coupled to the packet processing circuit and configured to store incoming data.

50. The routing arrangement of claim 49, wherein the memory management circuit is configured to provide packet data to the packet processing circuit.

51. The routing arrangement of claim 49, wherein the memory is further configured to store outbound data.

52. The routing arrangement of claim 49, wherein the memory comprises an SDRAM device.

53. The routing arrangement of claim 47, wherein the memory management circuit is configured to provide a notification to the route lookup circuit based on information extracted from an incoming data packet.

54. The routing arrangement of claim 53, wherein the extracted information includes at least one of source address information, destination address information, source port information, and destination port information.

55. The routing arrangement of claim 53, wherein the route lookup circuit is configured to select a route by referencing a forwarding table based on the extracted information.

56. The routing arrangement of claim 55, wherein the route lookup circuit is configured to select the route by performing a longest prefix match based on the extracted information.

57. The routing arrangement of claim 55, further comprising a routing engine to store the routing table.

58. The routing arrangement of claim 55, further comprising a memory to store the selected route in a forwarding table.

59. The routing arrangement of claim 55, wherein the memory management circuit is configured to forward the incoming data packet to an interface card based on the selected route.

60. The routing arrangement of claim 47, wherein the packet processing circuit is configured to remove an L2 header from an incoming data packet.

61. The routing arrangement of claim 47, wherein the packet processing circuit is configured to build an L2 header and rewrite an L3 header for an outbound data packet.

62. The routing arrangement of claim 47, further comprising a redundant router module to process the data packets and to forward the data packets between the interface modules in response to malfunction of the router module.

63. A router comprising one hardware board integrally housing a packet processing circuit, a memory management circuit, and a route lookup circuit.

64. The router of claim 63, wherein the memory management circuit is configured to provide incoming data to the packet processing circuit.

65. The router of claim 63, wherein the memory management circuit is configured to provide a notification to the route lookup circuit based on information extracted from an incoming data packet.

66. The router of claim 65, wherein the extracted information includes at least one of source address information, destination address information, source port information, and destination port information.

67. The router of claim 65, wherein the route lookup circuit is configured to select a route by referencing a forwarding table based on the extracted information.

68. The router of claim 67, wherein the route lookup circuit is configured to select the route by performing a longest prefix match based on the extracted information.

69. The router of claim 63, wherein the packet processing circuit is configured to remove an L2 header from an incoming data packet.

70. The router of claim 63, wherein the packet processing circuit is configured to build an L2 header and rewrite an L3 header for an outbound data packet.

71. A method of manufacturing a routing device, the method comprising:

providing a plurality of interface modules to communicate data packets using a network; and

coupling the plurality of interface modules to a router module to process the data packets and to forward the data packets between the interface modules.

72. The method of claim 71, further comprising coupling a midplane to the plurality of interface modules and to the router module.

73. The method of claim 71, wherein the router module comprises a system control module and at least one concentrator module integrated into a single unit.

74. The method of claim 73, further comprising providing at least one memory management circuit to provide data to the concentrator module.

75. The method of claim 74, further comprising:

coupling a memory to the concentrator module; and

configuring the memory to store the data provided to the concentrator module.

76. The method of claim 75, further comprising configuring the memory to store data associated with at least one of an outbound packet and an inbound packet.

77. The method of claim 74, further comprising configuring the memory management circuit to provide a notification to the system control module based on information extracted from an incoming data packet.

78. The method of claim 77, further comprising configuring the system control module to select a route by referencing a forwarding table based on the extracted information.

79. The method of claim 78, further comprising configuring a routing engine to store the routing table.

80. The method of claim 71, further comprising configuring a redundant router module to process the data packets and to forward the data packets between the interface modules in response to malfunction of the router module.

81. A method of manufacturing a routing device, the method comprising:

providing a plurality of interface cards to communicate data packets using a network; and

coupling a router module comprising a packet processing circuit, a memory management circuit, and a route lookup circuit integrated into a single module to the plurality of interface cards via a midplane.

82. A method of manufacturing a routing arrangement, the method comprising:

providing a crossbar arrangement; and

coupling a plurality of routing devices to the crossbar arrangement, at least one routing device comprising:

a plurality of interface modules to communicate data packets using a network; and

a router module to process the data packets and to forward the data packets between the interface modules.

83. A method of manufacturing a routing arrangement, the method comprising:

providing a crossbar arrangement; and

coupling a plurality of routing devices to the crossbar arrangement, at least one routing device comprising:

a plurality of interface cards to communicate data packets using a network,

a router module comprising a packet processing circuit, a memory management circuit, and a route lookup circuit integrated into a single module, and

a midplane coupled to the router module and to the plurality of interface cards.

84. A routing arrangement comprising:

a plurality of routing devices coupled to the crossbar arrangement, at least one routing device comprising:

a plurality of interface modules to communicate data packets using a network; and

a router module to process the data packets and to forward the data packets between the interface modules; and

a switch arrangement coupled to the plurality of routing devices and configured to switch control from a first routing device to a second routing device.

85. A routing arrangement comprising:

a plurality of routing devices coupled to the crossbar arrangement, at least one routing device comprising:

a plurality of interface cards to communicate data packets using a network,

a router module comprising a packet processing circuit, a memory management circuit, and a route lookup circuit integrated into a single module and a routing engine, and

a midplane coupled to the router module and to the plurality of interface cards; and

a switch arrangement coupled to the plurality of routing devices and configured to switch control from a first routing device to a second routing device.